



## UNITED STATES PATENT AND TRADEMARK OFFICE

A

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
[www.uspto.gov](http://www.uspto.gov)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/733,873	12/10/2003	Gilles Benoit	13445-030001 / L7 (MIT 10)	8066
26161	7590	03/09/2006		EXAMINER
FISH & RICHARDSON PC P.O. BOX 1022 MINNEAPOLIS, MN 55440-1022				ROJAS, OMAR R
			ART UNIT	PAPER NUMBER
				2874

DATE MAILED: 03/09/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/733,873	BENOIT ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Omar Rojas	2874	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 19 January 2006.
- 2a) This action is FINAL.                    2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-73 is/are pending in the application.
- 4a) Of the above claim(s) 1-25 is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 26,27,30,32,36,49-51,54,55,57 and 61 is/are rejected.
- 7) Claim(s) 28,29,31,33-35,37-48,52,53,56,58-60 and 62-73 is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on December 10, 2003 is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All    b) Some \* c) None of:
1. Certified copies of the priority documents have been received.
  2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____  |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>0804,1105</u> . | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
|  | 6) <input checked="" type="checkbox"/> Other: <u>Detailed Action</u> .      |

## **DETAILED ACTION**

### ***Election/Restrictions***

1. Applicant's election without traverse of Group II, claims 26-73 in the reply filed on November 17, 2005 is acknowledged.
2. Claims 1-25 withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on November 17, 2005.

### ***Information Disclosure Statement***

3. The prior art documents submitted by Applicant(s) in the Information Disclosure Statement(s) ("IDS") filed on August 27, 2004 and November 17, 2005 have all been considered and made of record (note the attached copy of form(s) PTO-1449).

### ***Oath/Declaration***

4. The oath or declaration is defective. A new oath or declaration in compliance with 37 CFR 1.67(a) identifying this application by application number and filing date is required. See MPEP §§ 602.01 and 602.02.

The oath or declaration is defective because It does not identify the citizenship of each inventor.

### ***Drawings***

5. The drawings are objected to because the character of the lines, numbers, and letters is not uniformly thick and well-defined (e.g., see Figures 7-8). See also 37 CFR 1.84(l). Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include

all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

*Specification*

6. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

*Claim Rejections - 35 USC § 102*

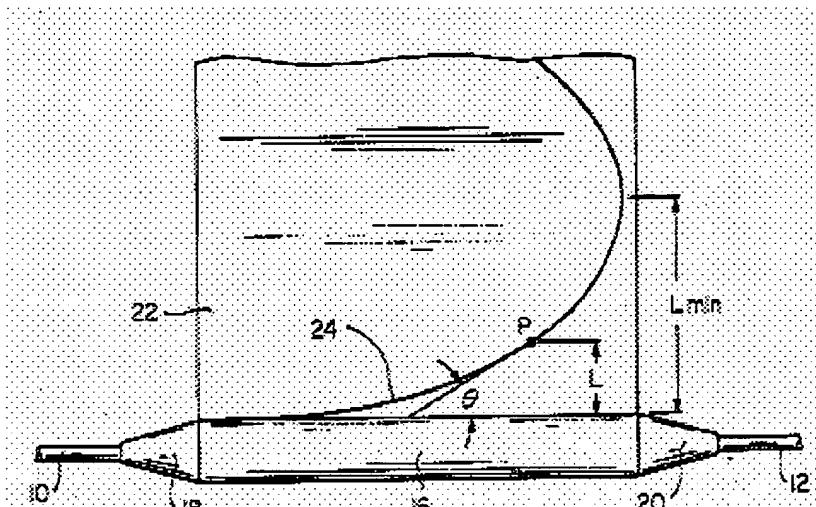
7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

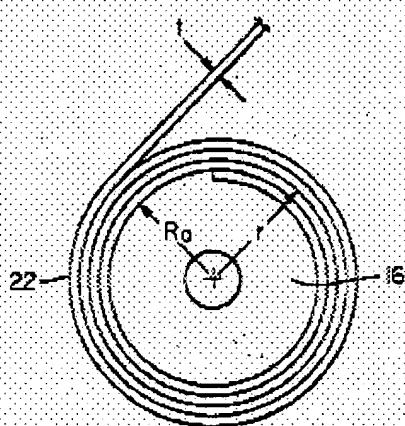
(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. **Claims 26, 27, 32, 36, 49-51, 57, and 61 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 4,478,486 to Fentress et al. ("Fentress").**

In re claim 26, Fentress discloses an article comprising a fiber waveguide (Figures 1-3) comprising alternating layers (22, 24) of different materials surrounding a core 16 extending along a waveguide axis, wherein the alternating layers (22, 24) define a spiral structure (col. 3, lines 3-10). Figures 1 and 2 of Fentress are reproduced below.



**FIG\_1**



**FIG\_2**

In re claim 27, wherein the spiral structure comprises a multilayer structure comprising at least

two layers (22, 24) of the different materials encircling the core multiple times (see also col. 3, line 54 to col. 4, line 20).

In re claim 32, Fentress suggests that an innermost layer of the one of the alternating layers 22 has a thinner portion than that of subsequent layers of the same material (see col. 3, lines 57-59).

In re claim 36, the core 16 may be hollow (col. 4, ll. 37-39).

In re claims 49-51, 57, and 61 the previous remarks concerning claim 26, 32, and 36 are incorporated herein. Fentress further teaches that the alternating layer 22 comprises polymeric foam and alternating layer 24 may comprise glass (col. 1, ll. 20-25). Thus, Fentress anticipates each and every limitation of claims 49-51, 57, and 61 as well.

***Claim Rejections - 35 USC § 103***

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. **Claims 30, 54, and 55 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fentress as applied to claims 26 and 49 above, and further in view of "Development and Infrared Applications of Chalcogenide Glass Optical Fibers" to Sanghera et al. published in Fiber and Integrated Optics as provided by Applicant(s) in an IDS.**

In re claims 30, 54, and 55, as indicated above with respect to claims 26 and 49, Fentress teaches all the limitations of the claims except for a chalcogenide glass comprising  $\text{As}_2\text{Se}_3$ .

The Sanghera article teaches chalcogenide glass optical fibers comprising  $\text{As}_2\text{Se}_3$  on page 252.

The motivation for combining Sanghera with Fentress is to transmit to longer wavelengths in the infrared (see page 252 of Sanghera). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the claimed invention to obtain the invention specified by claims 30, 54, and 55.

***Allowable Subject Matter***

11. Claims 28-29, 31, 33-35, 37-48, 52-53, 56, 58-60, and 62-73 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

12. The following is a statement of reasons for the indication of allowable subject matter:  
Regarding claims 28-29 and 52-53, the primary reason for allowance of the claims is the inclusion of the different materials comprising a high-index dielectric material and a low-index dielectric material, and wherein a ratio of the refractive index of the high-index material to that of the low-index material is greater than 1.5 or 1.8. Regarding claims 31 and 56, the primary reason for allowance of the claims is the inclusion of a polymer comprising PES or PEI.  
Regarding claims 33-35 and 58-60, the primary reason for allowance of the claims is the inclusion of selecting the thicknesses of the alternating layers to guide EM radiation along the waveguide axis at the recited wavelength(s). Regarding claims 37-39 and 62-64, the primary reason for allowance of the claims is the inclusion of the fiber waveguide exhibiting transmission losses smaller than about 1 dB/m at a selected wavelength for a straight length of the fiber

waveguide. Regarding claims 40-41 and 65-66, the primary reason for allowance of the claims is the inclusion of the fiber waveguide exhibiting transmission losses smaller than about 1.5 dB at a selected wavelength when bent around a 90 degree turn with any bending radius within a range of about 4-10 cm. Regarding claims 42-45 and 67-70, the primary reason for allowance of the claims is the inclusion of the fiber waveguide is capable of guiding EM radiation along the waveguide axis at power densities greater than or equal to about 300 W/cm<sup>2</sup> for a selected wavelength. Regarding claims 46-48 and 71-73, the primary reason for allowance of the claims is the inclusion of the fiber waveguide is capable of guiding the EM radiation along the waveguide axis at powers greater than or equal to about 25 W for a selected wavelength.

***Conclusion***

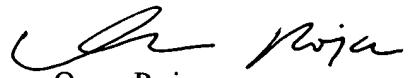
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Omar Rojas whose telephone number is (571) 272-2357. The examiner can normally be reached on Monday-Friday (12:00PM-8:00PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rod Bovernick, can be reached on (571) 272-2344. The official facsimile number for regular and After Final communications is (571) 273-8300. The examiner's RightFAX number is (571) 273-2357.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR

Art Unit: 2874

system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Omar Rojas  
Patent Examiner  
Art Unit 2874

or

March 6, 2006



AKM ENAYET ULLAH  
PRIMARY EXAMINER